the work of all schools after the war, but the schools are likely to turn out better instruments if they begin with the activities and interests of the future servants, and develop them in the light of the needs of the modern community illuminated when necessary by the historical point of view. I. L. KANDEL

CREATIVE TEACHING

Two literary journals have announced Robert Frost's assumption of a professorship of literature in Amherst College as an event significant to letters. As yet, no educational journals have taken the trouble to note the event as significant to teaching. How a poet's willingness to harness himself to the task of teaching freshmen in an American college can have significance for letters and not for teaching is not plain. In reality, it is an event which ought to rock the educational world.

To be sure, it has been indifferently noted. A professor in an eastern university said:

> The general impression is that it is an experiment which can not succeed. Frost is a countrified poet with a new system of metrics that I can not understand.

That was all. Heavily enveloped in the present darkness of the linguistic tradition, he could not see in Robert Frost's assumption of the professorship anything more than a promised failure.

It was in 1889 that James Russell Lowell, addressing the Modern Language Association in Cambridge, said:

> I think that the purely linguistic side in the teaching of them (modern languages) seems in a way to get more than its fitting share. I insist only that in our college courses this should be a separate study, and that, good as it is in itself, it should, in the scheme of general instruction, be restrained to its own function as the guide to something better. And that something better is literature. Let us rescue ourselves from what Milton calls "these grammatical flats and shallows." The blossoms of language have certainly as much value as its roots; for if the roots secrete food and thereby transmit life to the plant, yet the joyous consummation of that life is in the blossoms, which alone bear the seeds that distribute and renew it in other growths. Exercise is good for the muscles of mind and to keep it well in hand for work, but the true end of culture is to give it play, a thing quite as needful.

Lowell fully meant this for a warning, instead it was a knell. From all practical considerations, Lowell really sang the swan-song of the Lowell tradition at Harvard. The scientific method as applied to literature superseded the interpretative. Artists as teachers were superseded by artizans. At another time Lowell had said:

> We owe a great debt to the Germans. No one is more indebted to them than I, but is there not danger of their misleading us in some directions into pedantry? . . . Education, we are often told, is a drawing out of the faculties. May they not be drawn out too thin? I am not undervaluing philology or accuracy of scholarship. Both are excellent and admirable in their places. But philology is less beautiful to me than philosophy, as Milton understood the word, and mere accuracy is to Truth as a plaster cast to the marble statue; it gives the facts, but not their meaning.

At Columbia, in 1904, there was another slight explosion significant alike to education and to letters. Professor Woodberry, poet-teacher, resigned. He let it be known that Columbia was so indifferent to art that he could not comfortably stay on. His resignation made only a slight impression upon the complacency of the institution. The *Nation* remarked,

> They (Messrs. Woodberry and McDowell) represented a definite artistic and creative principle that contrasted sharply with, and did something to redeem the pedestrian scholarship and dilettante cleverness at Columbia as elsewhere. It is unlucky, too, that these brother artists should both be leaving because they found the tone of Columbia uncongenial and its conditions unfavorable to their work.

Whence it came is not clear, but the notion seemed gradually strengthening that he who had the least to do with literature as an art taught it best.

Some years later William James raised his wise voice against the mechanization of literature in the colleges, but he was unheeded.

Can there be that there is some relation

between this exclusion of the creative minds from teaching of literature, and the failure of the American college to capture and hold creative minds as students. The arraignment of the college by William Ellsworth, late president of the Century Company, on his resignation last August, was not, as some academicians chose to think, a mere stone from the hand of an outsider. Underlying Mr. Ellsworth's dismay at the slight part which the college was playing in authorship, was genuine concern for America's artistic destiny. He should have been heard and heeded. He showed that the men and women who have done most in the production of literature in the last generation—men like Howells and women like Mrs. Freeman—had not been to college. "Would the world," he inquires, "have had the 'Leaves of Grass' if Whitman had been trained to accept the standards of Harvard University? If Mark Twain had been graduated from Yale, would he, could he have written 'Innocents Abroad' and thrown stones at all the idols set up by George William Curtis and Irenæus Prime?"

Now no advocate of creative teaching will for a moment pretend that colleges can, at will, or should undertake to produce gifted writers. The moral lies elsewhere. If creative minds are excluded from teaching, creative minds will be automatically excluded from the student mass. If creative minds are excluded from the student mass, who is going to keep alive the creative principle in the college? How are the students not gifted with the divine flame ever going to understand and appreciate one who is? How is the ordinary student going to know how the artist feels? Whence will come, in consequence, the great audiences who are inevitably the prerequisite to great writers? The exclusion of creative minds from teaching, in the end, degrades literature as well as education.

Everywhere in teaching of literature there is a tendency to substitute a knowledge about literature for the esthetic experience itself. A classic example lies in the instance of the spinster, candidate for a doctor's degree, who presented her thesis on the "Love Potion in Medieval Literature." How greatly was her equipment to teach "Romeo and Juliet" thus increased? Could she better understand the impassioned idyll, deep as earth itself, because she had gone into an intricate analysis of medieval chemistry? The harp of the senses all unstrung, the fires of the imagination quenched, reason, scalpel in hand, ready to dissect the poet's corporeal house of dreams—what value lies in this! One poignant memory, touched with regret, of quivering first love is worth a thousand such analyses. The only power that can lift dead words from the page, and make them populous with the poet's many selves, is imagination. And to make them thus populous is the teacher's task.

What the field of literature in education needs is vehement young minds, with senses tingling in response to the thousand beauties of the world; imagination triumphantly balancing reason; intuitive powers to treat the past as a living present, and the present as a potential past, not spurning contemporaries; sympathy with Shelley as with Gloucester. Not scholars, not even critics is the present need of literature, but interpreters, virtuosos in emotion, men with full-orbed souls, capable of running the scale of human feeling from the bass note of self-pity to the high, clear C of mystical rapture. How long would Chopin exist in the world without Paderewski? How long can the Emersons without the Woodberrys?

If Robert Frost's assumption of a professorship in literature at Amherst means that one American college dares to break the tacit agreement that only certified scholars may teach literature, and dares to employ a countrified poet with a scheme of metrics not yet understood by all professors to act as an interpreter of the great, then there is occasion to rejoice both for education and letters. But the linguistic tradition is so imponderable and pervasive that one wonders if Amherst has not made a happy blunder that will be quickly repaired.

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COLLEGE ENTRANCE GERMAN VS. COLLEGE GERMAN

THE value of prescribing specific high-school units among the fifteen units for college entrance has for several years been an object of interest to high-school teachers and administrators. A suggestive field for investigation in the study of this problem is that of the influence of specific high-school units upon the marks of college students.

One small phase of this problem is presented in the following paragraphs:

The problem set was to discover whether students who had had two years of German in the high school made better grades in the second course in German so far as the University of Missouri was concerned than those who had had no German in the high school but had had one semester of German in the university.

TABLE I

Distribution of Students Enrolled in German 2 during Eight Semesters

Semesters	1	2	1	2	1	2	1	2	Total
Years	'09–'10	'09–'10	'10–'11	'10–'11	'11–'12	'11–'12	'12–'13	'12–'13	
Total number of students	94	106	73	90	74	83	57	100	677
Discarded for different reasons	29	28	37	15	25	14	15	19	182
Number who had taken German 1	34	62	10	58	19	53	13	57	306
Number who had taken two years in high school	31	16	26	17	30	16	29	24	189

This study was made possible by the fact that the course German 2a, or 2b, called *Reading, Syntax and Composition* during these four years contains two groups of students—those who had had two years of German in some accredited high school, and those who had had a five-semester-hour course in *Beginning German* (German 1a or 1b) in the college of arts and science.

In the four sessions, or eight semesters (Table I.), from 1909–10 to 1912–13, 677 students were enrolled in German 2a and 2b. Of these, 182 were not counted in the study because they were transferred or excused, because they had advanced standing or because completed data were lacking. Of the remainder, 306 had taken German 1 (*Beginning German*) in the university and 189 had studied the subject for two years in the high school and had had no previous German in the university.

German 2 was taught in three sections each semester by three teachers. Two of these taught during all the four years. (Two other teachers had the third section for two years each.) The system of grading is that by which the middle fifty per cent. of a class large enough to be free from individual errors is called Medium and of the twenty-five per cent. above Medium, the upper four per cent., approximately, is called Excellent and the lower twenty-one per cent. Superior. Of those below Medium, the lowest seven per cent., approximately, is called Failing and the upper eighteen per cent. Inferior. Though the grading of these teachers was slightly above the university average, the system was carried out in the twenty-four sections with sufficient uniformity to make the error arising from gradings by different teachers small enough to be negligible.

TABLE II

The Grades in German 2 of those Students who Studied German 1 in the University

Semesters	1	2	1	2	1	2	1	2	Total	Per Cent.
Years	'09–'10	'09–'10	'10–'11	'10–'11	'11–'12	'11–'12	'12–'13	'12–'13		
E	3	6	2	4	1	4	1	2	23	7
S	6	12	0	13	2	19	5	14	71	23
M	20	32	5	32	12	20	6	29	156	52
I	4	11	3	8	3	9	11	1	50	16
F	1	1	0	1	1	1	0	1	6	2

The percentages given in the last column to the right of Tables II. and III. show that the group in Table II. made thirty per cent. above "M" and eighteen per cent. below, while the group in Table III. made only

twenty-four per cent. above "M" and twenty-two per cent. below.

TABLE III

The Grades in German 2 of those Students who Studied Two Years of German in the High School

Semesters	1	2	1	2	1	2	1	2	Total	Per Cent.
Years	'09–'10	'09–'10	'10–'11	'10–'11	'11–'12	'11–'12	'12–'13	'12–'13		
E	0	1	1	2	1	0	0	2	7	4
S	8	3	3	2	5	3	6	8	38	20
M	14	10	16	7	18	8	17	13	103	54
I	6	1	4	3	4	5	4	3	30	16
F	3	1	2	3	2	0	0	0	11	6

This shows a slight preponderance in favor of those students taking German 1 for a semester in preference to two years of German in the high school.

On the face of the figures, it appears that for purposes of making high grades in German 2 in this particular institution, it did not pay to spend two years in the study of high-school German. This does not necessarily mean that German is inefficiently taught in the high school—for the student who has studied his German in the high school may not have taken German 2 for two or more years afterward while the student who has had German 1 has probably had it just recently with correspondingly less opportunity for forgetting it. Moreover, in making grades something depends upon knowing the system of study and recitation demanded by the teacher and the department. Students who have had German 1, have this. These figures indicate merely that those students in German 2 who had taken German 1 made better grades in German 2 than those who had taken two years in the high school.

If one attempted from the figures to make a comparison of the relative value of two years in the high schools as against a semester in the university, as judged by grades made in German 2, it would be necessary to see whether the students taking German 2 were typical groups from high-school German and from German 1. The latter is easy to determine and is shown in Table IV.

TABLE IV

The Grades in German 1 of those Taking German 2 as included in Table II. above

Semesters	1	2	1	2	1	2	1	2	Total	Per Cent.
Years	'09–'10	'09–'10	'10–'11	'10–'11	'11–'12	'11–'12	'12–'13	'12–'13		
E	2	7	2	7	2	6	4	3	33	11
S	6	15	0	16	1	19	4	17	78	26
M	18	31	6	31	11	23	4	35	159	53
I	3	7	2	4	2	5	1	2	26	8
F	0	0	0	0	0	0	0	0	0	0
Others	0	d–1 91–1	0	0	c–2 b–1	0	0	0	5	2

Naturally, no students who failed in the lower course took the advanced course. But particularly significant is the small number of students in German 2 who were below medium in German 1. Few students took German 2 who were weak in German 1. (The letters and figures in the bottom lines of Table IV. refer to earlier systems of grading.)

We have no definite data from the high-school students except (1) that there were, of course, no failures in high-school German taking German 2, (2) that students who thought themselves poor in the subject would in all probability have taken elementary French, Spanish or Italian in fulfilment of the modern language requirement for the first two years of the college of arts and science and (3) that those who took it did so because they liked it, as was found in response to supplementary inquiries. This, at least, is quite certain; the high-school student would not have taken German 2 if he had not *thought* that he was proficient in high school German.

These data show that if, in one large university, at least, certain students wished to make a high grade in the second course in German, they would have got on about as well by waiting for their elementary course in German until they reached the university; or, in other words, there was no great advantage to them (if there was any advantage at all) in taking this foreign language in the high school as a preparation for the second course in the subject in college.

W. W. CHARTERS

UNIVERSITY OF ILLINOIS

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LATIN AND THE A.B. DEGREE

UNDER this title[1] Dr. Eliot republishes, with some additions and slight alterations, a paper contributed to the March number of the *Atlantic Monthly*.[2] The revised article is ostensibly a plea for the abolition of the Latin requirement for the A.B. degree; and considerable pains have been taken to collect statistics showing (1) what is the present practise of leading colleges and universities in this particular, and (2) what proportion of students who pursue the as a matriculation subject continue the study as an elective after entering college.

The statistics show—as was to be expected—that publicly supported institutions incline to omit Latin as a requirement for the A.B degree, while privately endowed colleges and universities are more conservative. As to the free election of Latin after matriculation, it appears that but a moderate proportion of the students who enter with matriculation credit in the subject continue the study in college.

It is obvious enough how these facts might be used in a plea for the general abolition of the Latin requirement. But there are, in this connection, some very important and germane considerations which are not clearly brought out in this paper. For example, while it is true that Latin is elected in college by but a moderate proportion of the students who have had the requisite high-school training, it is altogether unfair and misleading to pass over in silence the fact that the other standard high-school subjects fare in much the same way as soon as they appear on a free elective basis. This is true even of English, which, at some point or other in the course, is a practically universal requirement for a collegiate degree. The argument (such as it is) that might be advanced against a Latin requirement on the basis of the proportion of students who pursue the study as a free elective in college obviously lacks force, unless it is shown, by a comparative table, that Latin fares far worse than other standard subjects in this respect.

Again, the "open A.B." (*i. e.*, the A.B. degree without prescription of Latin) does not necessarily mean the final and complete exclusion of Latin from the list of required studies. For instance, at the University of California a student may proceed to the A.B. degree along either of two routes, one with required classics, the other with required advanced mathematics, additional science and additional English. Any earnest student can qualify in one way or the other, and the plan retains something of the backbone of the old-fashioned course. Latin remains in the position of an alternative requirement, and, as a matter of fact, it is taken now just about as freely as was the case before the A.B. degree was thrown open to the scientific group.

This is a very different matter from throwing the degree open to any student who accumulates a certain total of units, without regard for the character of the studies pursued. A struggling college, in desperate need of students, might be tempted, under the plea of "democratic spirit," to excuse itself for adopting this

[1] Occasional Papers, No. 5, General Education Board, 1917.

[2] "The Case Against Compulsory Latin."

latter device as a means of increasing the length of the roster; but it is a dangerous method for a college that desires to maintain a respectable standard. This difference in the character of the open A.B. Dr. Eliot does not make at all clear, though he refers here and there to conditions that limit the choice of studies in the case of candidates for the A.B degree in various institutions.

In the enumeration of the reasons why colleges and universities supported by the state more readily adopt the open A.B., one reason sometimes alleged is not mentioned, namely that the A.B. degree has enjoyed a special prestige, and the taxpayer, who foots the bills, desires for his children the "best" degree within the gift of the college. In so far as this allegation is true, and in so far as the degree is thrown open to all students irrespective of the subjects pursued, it should not escape notice that the coveted prestige of the degree is in grave danger of being destroyed through the very fact of making it a sort of catch-all.

It was said above that Dr. Eliot's paper is ostensibly a plea for the abolition of the Latin requirement for the A.B. degree. As a matter of fact there would seem to be no pressing need for making such a plea; for, by his own showing, almost any student in any part of the country could choose a college in which the A.B. degree is hedged about with no such requirement. If his article is understood aright, it is really concerned but little with the *college* situation; rather it seems to be in essence a vigorous flank attack upon the standard subjects of the high-school curriculum, which Dr. Eliot would be glad to see displaced in favor of subjects of his own predilection, such as elementary general science, manual training, etc.[3]

[3] See pp. 10 ff.

Though the other standard subjects are not neglected, the attack, in this connection, naturally centers upon Latin; and, on page 12 ff., the argument against Latin as a high-school and college subject is developed at considerable length, including even the charge that the study of Latin is not of direct advantage as a means of earning a livelihood (page 14). Even this charge is not altogether true, as any one knows who has taken the pains to inform himself of late developments in the methods of Latin teaching. It is not customary to stress the money-making value of the study of Latin, but such value has been very clearly proved in experiments with commercial students.[4]

With the conventional arguments against the study of Latin we are not specially concerned here, since they are abundantly discussed elsewhere. But in Dr. Eliot's paper there are several implications that can not be passed over so readily. Thus he says (page 21):

> The practitioners of these new professions (agriculture, railroading, etc.) . . . ought not all indiscriminately to be obliged to study Latin.

This representation of Latin as a required study that no one can escape is sheer nonsense. The latest figures collected by the United States Commissioner of Education show that about thirty-nine per cent. of the students enrolled in the secondary schools of the country have some training in Latin. Much of this work is elective; indeed Dr. Eliot's own statistics show that, in the colleges and universities investigated, somewhat more than seventy per cent. of the matriculants offer Latin for entrance in institutions which require the subject neither for matriculation nor for the degree. It is about time that the

[4] "Latin as a Vocational Study in the Commercial Course," by A. S. Perkins, in the *Classical Journal*, X., No. 1 (October, 1914), pp. 7 ff.

facts of the case were looked into by those who undertake to discuss this subject.

Again, on page 20 appears the following:

> There was a time when the chief part of the work of universities was training scholarly young men for the service of the church, the bar and the state, and all such young men needed, *or were believed to need*, an intimate knowledge of Greek and Latin.

The saving phrase here italicized shows pretty clearly what is Dr. Eliot's real feeling regarding the value of a training in the classics even for those who follow the time-honored professions. And what of the following?

> It appears . . . that over half of the institutions whose practises have been examined *make no demand on the secondary schools of the country that they teach Latin*[5] (page 5).

It is a rather perilous matter to attempt to fix an implication; but the drift of this whole article is so unfriendly that the reader readily gathers the impression that the above quotation betrays a feeling that the chief reason why secondary schools should teach Latin is that the colleges and universities are foolish enough to make it a degree requirement.

If that is the real implication of the passage, it betrays marked lack of acquaintance with the change which the last few years have witnessed in the matter of aim and method in the teaching of Latin in secondary schools. Teachers of Latin who know their business are well aware that most of their pupils will never enter college, and most earnest and successful efforts have been made to develop a course that will give full value for the time expended, be that time long or short. The same lack of touch with what is being attempted and accomplished along these lines is indicated by the statement on page 16:

> At this moment, for most pupils in preparatory schools, who under compulsion give one fifth of their school time to the study of Latin for three or four years, the classical road leads to a dead-end, when they have once passed their admission examination in Latin.

[5] Not italicized in the original.

The problem of the high-school Latin course is being worked out very satisfactorily, and we are far from admitting the "dead-end"; but, to carry the war into the enemy's country, how do matters stand with elementary science, to which Dr. Eliot pins his hopes? One wonders whether he has never heard college instructors in science complaining that the science work done in the schools is so inadequate and misleading that they would prefer to have in their classes students who had never taken this preliminary training. If he has never heard such complaints, there are others who *have* heard them.

There are some insidiously effective touches in the paper, as on page 19, where, after stating that methods of teaching the newer subjects (modern languages, English, the sciences, etc.) are held by some to be now as effective as methods of teaching the classics, Dr. Eliot concludes:

> Many parents and educational administrators think that the new subjects and teachers ought to have a free opportunity to prove this contention. This is all that the proposal to abolish the requirement of Latin for the degree of Bachelor of Arts really means.

Such words can hardly fail to convey the impression that the newer subjects lack any fair opportunity to demonstrate their worth in the secondary-school curriculum—and because Latin, an ever-present incubus, at all points blocks the way. But what are the facts? It is true that the Latin enrollment in secondary schools has shown a marked absolute increase during the last few years, but the *proportion* of students who take Latin is declining. As noted above, less than forty per cent. now pursue the subject; and of this total by far the greater part do not continue the study

beyond the second year; *i. e.*, the great majority of the students who take Latin in the schools give to it about two fifths of the time of one high-school year. How it must handicap other subjects that a minority of the students give this fragment of their time to the study of Latin!

At this point, too, there seems to be lack of information as to the conditions of Latin teaching. For, with the great majority of Latin students enrolled merely for a two-year course, it must be obvious that great numbers are pursuing the subject without any thought of meeting a college requirement. Upon the work of these pupils the abolition of Latin as a requirement for the A.B. degree could have but an indirect bearing.

The concluding sentence in the last quotation, however, was probably designed to carry an additional implication, namely that, in giving the other subjects a "fair" chance, we should cherish no apprehension as to the fate of Latin. This implication finds specific expression on page 12:

> That Latin should be no longer a requirement for the degree of Bachelor of Arts does not mean that the study of Latin should be given up in either the secondary schools or the colleges. On the contrary, it should unquestionably be retained as an elective college subject, and should be accessible to the pupil in all well-endowed and well-supported secondary schools, private and public.

This sounds specious, and the unwary might easily be caught by it. But the whole tenor of this paper being such as it is, even this statement needs to be scrutinized carefully.

In the first place, the proposal to keep open the opportunity to elect Latin for the students who naturally incline to that sort of work is obviously bound up with the doctrine of interest, of which Dr. Eliot is so earnest an advocate (see page 19). It is true, of course, that an interested student usually works best; but this whole subject is thrown into dire confusion unless a clear distinction is made between *cultivated* interest and spontaneous interest. The former, of course, is very often the more reliable incentive to effort that is really worth while.

Many a student who takes up a subject with dread or aversion has been led by a competent teacher to see the merits of that subject and to work at it with interest and profit. It may well be questioned whether this experience of reaching appreciation through surmounting a difficulty is not more valuable for the student than simply to follow the leading of a spontaneous interest. And how is such experience to be gained if a pupil is forthwith excused from attempting any subject because it repels him by its real or apparent difficulty?

It is not enough, therefore, to concede that the opportunity to study Latin should be kept open for the (comparative) few who naturally incline to literary pursuits. As now taught in progressive schools, Latin is a subject that ought to be taken by multitudes of pupils who have no special literary bent, and who entertain no thought at all of going to college.

In the second place, the proposal to keep the opportunity to study Latin open for those of a literary turn is something that may look well on paper, but to realize it in actual fact is quite another matter—and for a very practical reason. Most school boards have to face a difficult financial problem, especially at the present time when such numerous and varied demands are made upon the treasury. And just as soon as the number of students electing a given subject shows a marked falling off, the question arises whether the school can "afford" to maintain that subject. Under these circumstances, what more natural than to pass a blanket rule "that no class will be organized in a sub-

ject for which less than twenty students enroll''?

Thus, without malice on the part of a school board, some of the most valuable studies in the curriculum may be thrown into a state of jeopardy. With free election, such subjects as typewriting and manual training would have no difficulty in maintaining themselves under such a régime; but for the standard subjects it is deadly, as has been shown in actual practise. Consequently Dr. Eliot's proposal is fair only in appearance; for who is to guarantee that, even in large schools, the opportunity to take Latin would be kept open merely for the few of pronounced literary tastes? Fortunately, as above noted, Latin as now taught by teachers who know their business is not a subject for the few merely. The high-school course, if properly conducted, is for the many, irrespective of a college requirement. And only as teachers realize this fact and cooperate in working out a high-school Latin course that is an end in and for itself can they hope that Latin will retain its present strong position in the schools.

The automatic elimination of subjects from the curriculum of a school by the sort of blanket rule above described has one aspect that seems not generally recognized. It might be expected that the shaping of a school curriculum would be the work of mature persons; but under this plan the constitution of the curriculum is determined by the vote of immature children; what most of them like will be taught, other subjects—irrespective of their value—will be dropped out.

Dr. Eliot's paper does not develop his doctrine of interest in sufficient detail to show exactly how far he would go in this matter; but there is an educational school which frankly makes a child's spontaneous and untutored interest the cornerstone in constructing his course of study. The evils likely to attend such a system of education perhaps find some parallel in the follies perpetrated in the name of vocational guidance.

Happily there is a saving fund of common sense in the world. The wisdom accumulated through generations of human experience can not all be swept away, even though the vagrant blasts of educational theory blow with unparalleled fury. Life is not a succession of elective courses for most of us; and it is a good thing to learn early to face cheerfully one's task, be it congenial or not. There is sound sense in the disciplinary theory of education according to which older heads build up a course of study by combination of tried and proved subjects, with the element of interest, if it be lacking at first, to be introduced under the leadership of a competent teacher.

Those who are acquainted at first hand with the student of high-school age know well how mature is his judgment as to the relative educational value of the various subjects of the school curriculum. In most cases he would hail with joy the inauguration of a régime under which, in the first instance, his untutored likings would be consulted as to the studies to be chosen, with the privilege of rejecting anything against which he felt a prejudice or which some earlier pilgrim declared to be ''hard.'' Those of us who know the college student at first hand are sometimes forced to question whether his judgment is much sounder than that of his high-school brother. At one of the state universities (not the one with which the writer is connected) a student pursuing one of the standard subjects was thus taken to task by another student:

> Why do you take that stuff? All the best educators say there is nothing in it. *I* come here to learn to sew and cook and dance.

In encouraging this spirit of educational anarchy, the "best" educators are surely taking upon themselves a heavy burden of responsibility.

In spite of all this, Dr. Eliot rejoices that we have moved away as far as we have from the old educational moorings, and he forecasts with obvious satisfaction that progress from now on will be more rapid. As a matter of fact we are at a time when it would be well to make haste slowly. Even though Columbia University has lately adopted the open A.B., President Butler nevertheless thus puts himself on record in the September number of the *Educational Review*:[6]

> No educational instruments have yet been found that, in disciplinary value and in capacity to train a powerful and subtile mind, are equal to Greek, Latin and mathematics. The descriptive and experimental sciences can not do it—or at least they have not done it—and the same is true of the newer subjects of study.

And Dr. Eliot himself, somewhat inconsistently, has this to say on page 12:

> Although the argument for the introduction of new subjects in both school and college is overwhelmingly strong, nothing but long experience can fully demonstrate that the new subjects and the new methods are capable of producing as powerful and serviceable men and women as have developed during the régime of the old subjects and methods.

In view of this statement, it is hard to see how an apostle of science and of the scientific spirit can with good conscience urge us to make haste in abandoning the tried and proved in favor of a substitute whose very sponsors are not quite certain that it will prove to be "just as good."

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UNIVERSITY OF CALIFORNIA

[6] "Is American Higher Education Improving?" p. 177.

VITAL STATISTICS AND THE SCHOOLS

THE call to public health, like the call to preparedness, is worldwide, and never so imperative as now. In a way the call has become a compelling passion of civilization, and reflects the newer attitude toward the factors of health and disease, and the clearer recognition of man's relation to the constitution and laws of nature. We have come to realize as never before that we are part and parcel of the complex web of nature and life, so inextricably enmeshed in the mazy environment as to render escape impossible.

Associated with this attitude, indeed largely inspiring it, is the dominance of the scientific method of thought and activity. One readily perceives that involved therein is the problem of human health, and that an important department of said method is that of statistics, or the method of correlating and coordinating all available data bearing upon a given problem. This recognized and the step to a recognition of vital statistics as an adjunct to the problems of health is a short one. By vital statistics may be designated those data of human life —generation, laws of development, growth, longevity, efficiency, health.

But when one recalls that ancient adage, "Know thyself," the query is not strange, Why all this modern inquisition as to so old a problem? Let it be granted that the problem itself is not new; that even in one of the products of that age, Plato's splendid Utopia, "The Republic," there were data which showed insight into phases of the problem not unworthy of modern study; still it is in the newer knowledge and clearer interpretations it enables us to make that there are grounds for still further encouragement and assurance. Had Plato known the newer data of heredity and its laws it is not beyond belief that

his Utopia might have been no less enduring and glorious than were the art and philosophy and literature of that golden age. Accepting, then, whatever of worth may be intrinsic from the past, and acknowledging our debt thereto, we may still go forward with confidence and courage in the search for still further light.

Unless one has had occasion to seriously undertake to work out some of the problems of human weal or social progress he could hardly guess the paucity of data bearing thereon. It might be supposed that with a government like that of the United States, with its great departments of industry and commerce, its bureaus of animal and plant industry, of commerce and labor, statistics, etc., there should be available all possible data of human affairs. That there are enormous bodies of facts on various of these subjects there is not the least doubt. And the same is largely true of other countries and peoples. One may find any amount of data bearing upon improved modes of agriculture, stock breeding, plant culture, etc., from great to small. Upon data available from these sources the markets of the world have been "cornered," fortunes made in wheat and corn pits. The stock markets are pulses which reveal the state of economic health as related to commerce. But when one seeks to coordinate data as to that phase of statistics which we call "*vital*," those which touch on problems of human generation and development, conditions which make for weal or woe, the laws of heredity as relating to health both of body and mind, conditions which have to do with moral or social progress, crime, pauperism, insanity, etc., he will seek largely in vain.

The object of this discussion is a call for awakening and inquiry; a call for the recognition of at least as much concern and pains on behalf of children of the nation as upon its calves and colts, its pigs and poultry; a call for an appreciation of the essentially identical laws of hygiene as they relate to the one or the other or all sorts of living things, rather than the assumption that the writer has any new light or novel scheme of school betterment to promulgate. In several recent utterances through the scientific press he has sought to give expression to some of these convictions and may beg to refer to them for certain details which the scope of the present paper will not allow.[1]

As a school problem the relation of the above may not at first sight be obvious, but it is hoped that what follows may render this doubt less doubtful. School conditions and products have not been without sharp protest among us for several years. Indeed, at this very time our school systems and methods have been the target of some vigorous criticism from various sources. Let it be granted that some of this has been sensational, or even hysterical in not a few cases; suppose we discount much of it as the vaporings of faddists who have some hobby to parade or some pet scheme to exploit; allow if you choose that still other phases of this criticism are expressions of superficiality or misapprehension; still it must not be overlooked that much of it—too much for our comfort—comes from thoroughly sane and wholesome sources, from commissions of inquiry, from teachers of sound experience, from professors, presidents, critical students of educational problems of this and other countries. It is this last which can not be ignored nor sneered out of court.

Let us set about an analysis of the situation and conditions. It is rather evident that somewhere there is deficiency. Can

[1] *Medical Review of Reviews*, April, 1913; *Science*, May 16, 1913; *Popular Science Monthly*, October, 1913.

we locate it? We may look in two directions for a solution, namely, into the nature and methods of the schools, the ideals and aims of our educational systems; or we may carry our analysis back of these to an inquiry into the nature of the subject of our systems, that is, to the child. The first has been our usual method of procedure. Seldom have we taken a scientific peep into the physiology of either physical or mental development or growth. Our eyes have been focused on school buildings, school programs, sessions, hours, etc. These are not unimportant by any means. Nor is it valueless to study school methods and their relations to hygiene—courses, books, light, exercise, etc. But given all consideration to these have we yet been as critical as we may? It is true that these relate more or less to the child, its general health and comfort, providing the environment most conducive to the ends sought. But there still remains a line of inquiry directed to the nature and constitution of the child itself.

As an indication of growing appreciation of this point it is only necessary to cite the now generally accepted provisions for medical inspection of schools. It has been found that there may be important relations between not only sight and hearing and educational method, but that teeth, stomach, tonsils—in a word, the whole problem of food and nutrition stands intimately correlated with these ends. But we are as yet only touching the border of the matter. We are beginning to suspect that back of all these and conditioning them are constitutional, *i. e.*, hereditary, conditions which relate to antecedents and from which there is no appeal. All this we have quietly ignored, if even it has been suspected. On the other hand we have constructed our system and organized our methods on the adage *"created free and equal."* Let it be assumed that before the law as relates to moral or civil responsibility and opportunity there is much in this assumption to challenge consideration. But when elaborate systems of compulsory school attendance and identical school methods and exactions are prescribed without distinction as to antecedents we fly in the face of nature and experience and become guilty of worse than the charge of "cruelty to animals." It is the ominous negation of this adage which must give us pause. Every teacher of sound pedagogical insight and experience knows very well that equality of educability is sheer myth. To one familiar with even the elementary facts of biology it must be one of the most obvious of scientific deductions that children under known laws of heredity are born under bondage to limitations, or with susceptibilities and capacities which render impossible any hard and fast method of dealing with mental growth by a given mode of school life. As well expect the potter to create all the rich variety of ware, from the crude earthen pot to the finest triumph of Wedgewood, from one and the same mass of clay, as to expect the school potter to mold all sorts of brain clay into the highly wrought product of an Angelo or an Aristotle. Not every child is fit for the conventional school. Comparatively few are ever capable of those higher phases of educational achievement involved in the college or university.

But how shall the teacher know the fit from the unfit? Just here is the crux of our problem. There must be found some means of ascertaining them. It is here that our human statistics become indispensable. In the annual birth product of a country are all sorts and conditions of human brains. The constituent units of these are well developed at the time of birth, and before they come to the teacher are of nearly full size, with the cell elements com-

plete. They range from the potentialities of "mute, inglorious Miltons" to the imbecile or feebleminded. They have been martialed into the school by law according to the *almanac*. No question has been raised as to *mental* age or state. And to this indiscriminate mass, this unsorted human grist, the grind of the schools is set agoing! But, what can be done? The problem is not simple. There can not be a school for every individual child! True, but there may be schools graded according to mental states instead of birthdays. But there must be something which antedates the school. Vital statistics should begin and continue from birth on through babyhood, early childhood, up to kindergarten age, and should include data as to parentage, physical qualities, mental traits, temperamental aspects and moral characteristics. With an abstract of this pedigree of birth and antecedents and childhood at the command of the teacher or school authorities the elementary school is no longer the indiscriminate mass of human possibilities but one which can be easily assorted and disposed according to capacity.

Then there should come, as the next edition of statistics, those of the school itself, continuing throughout the several grades. These can be made to include a record of the rate and character of progress; the mental aptitudes; temperamental and moral traits. Here becomes possible the accumulation of a body of data relating to the history of individuals, families, racial traits, etc., with whatever of incipient lawlessness or mental or moral obliquity the child may reveal at this time. From such statistics would be available far superior evidence as to hereditary insanity or similar idiosyncracy, than would be that afforded by any so-called expert evidence of the alienist.

That there may be difficulties involved in securing such vital statistics may be freely admitted; yet they are not insuperable. Similar difficulties were encountered in matters of reporting cases of infectious disease to boards of health, yet we now have in almost every state and community such working methods of guarding the public health. Every insurance company makes similar inquisition as a basis for granting life insurance; and any evasion which conceals data of vital concern in such cases vitiates or nullifies the contract. From the standpoint of the student of sound education the need of statistics relating to educability are vastly more important than those just cited. And when the matter is made clear to those concerned we may be assured that no more difficulty will be encountered in the one case than in others. Granted there may be in the family closet certain skeletons whose features are not a pleasing thing to have displayed to public view, still the school and the state have certain rights no less sacred than those of the family. But such a school census as is contemplated need not be in any sense a public matter. Surely the school principal is as trustworthy as a town clerk, and the work of the teacher more vital than that of an insurance agent! With such data available as are provided in this census the work of the teacher is no longer the chaotic, hit-or-miss program it has been in the past, but one which renders work intelligent because based upon scientific principles. Furthermore, with the aid of the Binet scale or similar device it is quite practicable to apply to every child a fairly accurate test of mental capacity at almost every step of the school course. And with such a definite school pedigree, supplementing that of the child's antecedents and physical development, promotion from grade to grade, and from these to the high school, is far easier and surer than that of an ex-

amination following the preliminary cramming process so usual nowadays. And after admission to the high school, or later the college, the teacher or professor is provided with something far better than "pass cards" or certificates; namely, a body of intelligent data which reveal innate, as well as acquired potentialities, which in turn may afford indications as to this or that course or vocation, one or another professional propensity.

How long shall we continue to be witnesses to the pitiable spectacle of the chronic "repeater" in the grades of every school, and the even more deplorable farce of the chronic "flunker" in the college or professional school? In the former it involves to both pupil and teacher embarrassment and cruelty; in the latter the false insignia of honor and pretension which are worse than baseless.

A summarized outline of the proposed plan of vital statistics as related to education may be given as follows:

1. Adequate vital statistics touching (*a*) birth and parentage; (*b*) physical traits, health, growth; (*c*) mental traits or predispositions; (*d*) moral traits or temperamental peculiarities. Critical data covering these should be matter of record required of parents or guardians of every child.

2. School statistics. Beginning with the kindergarten or elementary school on through the grades there should be permanent records (*a*) as to character and rate of progress; (*b*) mental aptitudes or propensities; (*c*) temperamental or moral aspects; (*d*) in doubtful cases there should be throughout the school course such tests as those afforded by the Binet scale of intelligence in order to afford intelligent insight into the status of each.

3. High-school statistics. Entrance upon the high-school course marks a crucial epoch in educational life. To afford a better basis for a correct estimate of its fitness for the complex material which comes to its portals annually it seems rather obvious that some better standard than at present available should be devised. The deplorably large percentage of those entering who drop out at the end of the first year is ample evidence of this need. The farcical pretext of lowering the passing grade in order to encourage pupils to continue the course has only proven the folly of such an experiment. But if we may substitute the obvious significance of the data of the census of the elementary and grammar school as an index of the pupil's fitness for the high school, or whether the vocational school would be better, it seems altogether probable we should solve at least a part of the confessedly difficult problem. But granted the capacity of those entering there should be a similarly recorded census of vital and scholastic statistics, as of the lower school. And finally, that this body of data should count more largely in the question of the fitness of candidates for the college or university than heretofore.

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COLLEGE TEACHING IN AGRICULTURE

In any technical department in university work it is exceedingly difficult to secure reasonable attention to methods of teaching. The teachers of chemistry are interested in chemistry and the instructors in the poultry department care mainly for hens. The result is that a good deal of the university teaching in the country is, as teaching, beneath contempt. Probably the estimate of well-informed observers to the effect that the teaching in colleges and universities is inferior to that in high schools is correct. And if it is, this single fact would account for the slump in stu-

dent work between the high school and the college of which college faculties so ardently complain.

The college teaching of agriculture has suffered disproportionately from this obsession for subject matter to the exclusion of pedagogic technique. There are many good reasons why the agricultural teachers have been carried away by pomology, agronomy, dairy husbandry or stock breeding. What is more, there have been no precedents for the teaching of agricultural subjects; and nobody has been in a position to bring over the findings of the students of education and make the necessary applications in the agricultural classrooms.

While the classroom presentation of subject matter is often faulty and sometimes ridiculous, the organization of subjects into a curriculum is even worse. The course of study is hardly more than a jumble of titles from which the student blindly grabs whatever attracts his passing fancy.

In the construction of university curricula in agriculture two favorite and fundamental fallacies have prevailed. The first is that a miscellaneous congeries of subjects will integrate themselves in the student's mind. The second is that non-technical subjects, especially the sciences, will not only coordinate themselves in this way, but that they constitute "an indispensable foundation for the application of science in agriculture." (I quote the favorite phrase.) In my judgment neither proposition contains an iota of truth.

The fact is that the professional courses in agriculture of college grade need to be reconstructed on a new set of principles. Up to the present they have been modeled chiefly on the science teaching of the universities, which in turn was a bald adaptation of the science teaching in the German universities. A much better pattern (though still faulty) could be found in the work of the best engineering schools. The forestry schools have also done some suggestive things; but probably the best teaching of agricultural subjects to-day is to be found in certain strong state normal schools.

In view of these very serious difficulties some of us in the Massachusetts Agricultural College have been trying to discover a better foundation on which to build our curriculum, and some better principles by which to direct our instruction. The statement of principles which follows has no official standing. It is the work of half a dozen instructors studying these questions privately. The form of statement is my own.

We believe that the university course for agricultural students should include a substantial quantity of humanitarian and citizenship studies, but that the major portion should be directed to some professional specialty. We propose five principles by which to guide the student's work in the technical field, as follows:

I. MOTIVE.—*A motive must be established first of all.*

The expectation of self-support in a profession will usually be the primary motive. To this will later be added professional pride and certain important altruistic impulses. As college courses are now generally conducted the student is discouraged from forming a specific and effective motive early in the course. Instead he should be assisted to adopt a definite agricultural motive as early as possible. This means that he should decide whether he is to follow stock breeding or dairying or floriculture.

II. DEVELOPMENT.—*From this primary and general motive specific problems must be developed.*

For example, in pomology such prob-

lems will develop as, what kinds of fruit to grow, what soils to select, what tillage to give, what pruning is desirable, what insect pests and diseases are to be fought and all the multitude of similar technical questions. The courses of the freshman and sophomore years particularly should develop a whole encyclopedia of unanswered questions; but these can be logically formulated only after the motive has been established. The student who begins his university work in chemistry, entomology or geology before he knows whether he is to be a dairyman or a fruit grower simply can not ask himself such questions, to say nothing of answering them.

III. Materials.—*The materials of instruction must be chosen with a view to answering these questions.*

These immediately become technical materials, therefore, and are to be presented in technical courses. The present assumption that botany, physics, etc., are "indispensable" as "foundation" subjects for pomology or landscape gardening is wholly untenable, and the retention of such subjects in a general required list is disastrous to the professional curriculum. The further popular assumption that such subjects give valuable "general training" is both beside the point and without proof.

IV. Coordination.—*All the professional instruction must be coordinated about these questions, these in turn being coordinated about the primary motive.*

This coordination must be close and vital, and the pupil must be conscious of the bearing of all materials upon his problems. Present instruction in the sciences fails most completely at this point, for while the science courses are given professedly in the interest of the technical majors, only a very small quantity of the materials ever becomes available for practical application. The applications can be made efficiently only when and where the question arises, that is in the technical department of market gardening or poultry husbandry. The answer may come from chemistry or bacteriology or meteorology, but it is utterly impossible for the chemist, the bacteriologist or the meteorologist to make the application to the student's need.

V. Administration.—*In order to secure this effective coordination, and also to eliminate the large amount of material which does not function in response to the foregoing principles, it becomes necessary for all the professional work to be under the control of the particular technical department conducting the major.*

In place of formal science as now given in the science departments the professional pupil will take practical applied science in his major department. For example, the insect pests of the orchard, their identification and control, can be taught by the professor of pomology to his students much more effectively than it can ever be taught in any department of entomology, and in one quarter the time.

In a few cases science courses can be given in the science departments for particular groups of technical students, the matter and method of these courses to be strictly prescribed by the technical instructor.

It will be seen that the trend of these principles is (*a*) to concentrate and coordinate the work of the student upon his professional major, and (*b*) to vitalize the whole course by relating it directly to a clearly conceived motive.

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EDUCATIONAL EVENTS

INDUSTRIAL EXPERIENCE OF TRADE-SCHOOL GIRLS IN MASSACHUSETTS

The industrial experience of trade-school girls in Massachusetts is the subject of a re-

port just issued by the Bureau of Labor Statistics of the U. S. Department of Labor.

The initial data for this report consisted of 2,500 school records of pupils who had attended three Massachusetts trade schools. Of these, three fifths took dressmaking, and one fifth millinery courses, the others taking courses in power-machine operating, trade cooking and design. Girls between fourteen and twenty-five years of age are admitted to the schools, the records showing that 19 per cent. were under fifteen and nearly 15 per cent. over eighteen years of age when they left the school. Less than two fifths of the girls went into the trades for which they had been trained.

Not all the 2,500 girls for whom school records were obtained could be found, but it was possible to locate 1,113 and through personal interviews make an intensive study of their working experience. Of these 849 had been pupils of the Boston Trade Schools, 166 of the Worcester Girls' Trade Schools and 98 of the Cambridge Girls' Trade School.

The Worcester and Cambridge schools had been in operation only three and one half and two years, respectively, and the experience was therefore too short to furnish a basis for conclusions as to the industrial efficiency of their pupils. The ten years' experience of the Boston school, however, was long enough to throw considerable light on the efficiency of the trade-school training, the stability of the pupils in the trades for which they were trained, and their wage-earning capacity.

Of the 849 girls who had attended the Boston school, 12.6 per cent. had been out of school less than two years at the time of the investigation, 54.6 per cent. less than five years and 13.6 per cent. as long as eight years. Those who had used their trades numbered 744, and of those who had not used their trades 86 were at work at other trades, while 19 were not in gainful employment.

The history of the 744 Boston trade-school girls who entered their trades does not support the common theory that the working girl's stay in industry is limited to a few years. Of those who had been out of school seven years, 66.8 per cent. were still wage-earners, 19.4 per cent. had married, 9.1 per cent. were at home or in school, and 4.6 per cent. had died or been lost sight of. As compared with girls who entered the industrial world without training, the trade-school girls showed little tendency to shift about from trade to trade. What shifting occurred was largely due to trade conditions, the dull season being the most important cause; those laid off during such a season sought work elsewhere, and if they found steady employment kept it.

As to wages the trade-school girls showed an initial advantage over the girls who worked up in the trade itself, for they escaped the preliminary unskilled and poorly paid processes through which the untrained girl enters the trade. After the first few years this advantage is lost, and the trade-school girl shows no decided superiority over the trade-trained girl.

The Boston school tries, not always successfully, to secure an entrance wage of $6 a week for its accredited pupils. The rate of advance is rather slow. Taking $8 a week as the minimum required for self-support, it appears that for the trade-school group as a whole, among those who had been at work for less than three years not quite one fourth were self-supporting; among those who had been working from three to five years, nearly seven tenths had reached or passed this point, and among those who had been working five years but under seven nearly nine tenths were independent. Apparently, therefore, it takes about five years of working experience before the trade-school girl has certainly found herself and before it can be definitely known whether or not she can earn a living wage.

The principal criticism brought by employers against trade-school girls were their immaturity, their lack of experience and their overhigh idea of their own value. The conditions in dressmaking and millinery are changing so that there is less and less opportunity for young workers in either. If the trade-school girl is to hold her own in these trades, it seems necessary that the school shall demand more mature pupils, who are able to give a longer time to their trade training.

The trade school for girls, the report con-

cludes, serves a real need, but it does not in practise adapt itself readily enough to actual conditions. It tends to continue teaching trades which offer little opportunity to the young worker, and to ignore the tendency of industrial evolution; the industrial trend is toward increasing development of machine processes, yet the trade school is apt to offer an extended system of trade training for hand processes. Its future depends largely upon its ability to recognize the industrial trend and adapt itself accordingly. "Growth out of local needs and adjustment to local demands is the fundamental basis for a trade school's success."

PUBLIC-SCHOOL ENROLLMENT AND THE WAR

ENROLLMENT in American public schools has been affected by the war, but not to the extent of making it less than last year, according to figures compiled by the Department of the Interior through the Bureau of Education. Figures from 1,411 cities and 696 counties or districts show an increase of close to the normal amount of 2½ per cent. in elementary schools. In high schools, however, the increase is only one fourth of the usual 9½ per cent.

Such increase as there is in high-school enrollment is caused by the girl students. Fewer boys are enrolled this year in every class in high school except the fourth; apparently there is a healthy tendency for boys in the senior year to remain and graduate.

In city elementary schools the increase in enrollment is actually somewhat above normal; but in city high schools there is a marked falling off, especially among the boys.

Country schools show some gains over last year both in elementary and high-school enrollment, but not as great as would be expected under normal conditions. Rural high schools show increases for both boys and girls, despite the war.

ENDOWMENT OF A SCHOOL FOR GIRLS IN INDIA

ACCORDING to the correspondence of the associated press one of the greatest charitable gifts in the history of India has just been announced at Delhi. The Maharaj Kumar of Tikari, one of the wealthy native princes, has executed a deed of trust devoting his entire personal estate to founding an institution for the education of Indian women. The property concerned is valued at about $7,000,000. In view of the much greater purchasing power of money in India, it is believed that the gift will accomplish as much proportionately as a gift of nearly ten times the size in England or America.

Dependent members of the Maharaj's family have already been provided for by separate funds, and all liabilities of the estate are duly secured. The scheme is for a strictly "purdah" residential institution, where the girls will be trained and educated on the best modern principles, from the age of five to eighteen. There will be no question of caste or creed.

The gift owed its inspiration largely to the Maharaj's wife, who has been one of the foremost native Indian women in the crusade for the improvement of the lot of Indian women. The Maharaj himself was one of the first native princes to fight in France, and has spent over two years on the battlefield. He was brought up by English tutors in India and has been a great traveler.

The Maharaj's wife, in a letter describing the gift, says:

> The education of women is a problem demanding the attention of all governments in every country of the world. In India the issue is more vital even than in other countries. A young man leaves his home in India to be educated; he comes, perhaps, to the English university, and at the end of three years he returns home to marry an Indian girl of his own social position. During his college days the young man has associated with cultivated Europeans, has learned many of their ways, has become used to clever, well-informed conversation and companionship. What about his Indian bride? If she has been brought up in the traditional Indian way she will be quite uneducated according to western standards, and will know little of life outside her immediate surroundings. All her days she will have been kept in seclusion, for the ultimate purpose of marriage at the age of thirteen or fourteen.
>
> It is because I feel the position of the Indian girls so keenly, because I realize the grave dangers which their general inability to be real helpers en-

tails, that I am so enthusiastic and so anxious to do all I can to help.

My husband has executed a deed of trust of his whole estate for the founding of an institution to educate Indian and Cingalese girls, and has made it an essential point that creed and caste shall be no bar. We hope to introduce into the school a thorough knowledge of English. A college will be built, and will include residential quarters where the students will live. A girl can stay until the age of eighteen, and this I think very important, for the prevailing early marrying age in India at present can not but prove detrimental to the physical wellbeing of our women.

A site for the college has been given by Sir Ali Imam, one of the leading native lawyers.

THE WILSON MEMORIAL CONVOCATION HALL OF THE UNIVERSITY OF CINCINNATI

THE University of Cincinnati announces a gift from Mrs. Obed J. Wilson of a Convocation Hall to be erected after the war. At a recent meeting of the board of trustees, President C. W. Dabney presented a letter from Mrs. Wilson which in part reads as follows:

Learning that the university greatly needs a Convocation Hall for the regular assemblages of its faculties and students and for commencements, celebrations and public lectures, and believing that a large attendance of the citizens of Cincinnati at these exercises will increase the beneficent influence of the institution, I shall be glad to erect a suitable Convocation Hall for the university. It is clearly impossible to do this now, but I have made provision in my will to do it, and I shall be glad, as soon as the normal condition of finances is restored, to provide the funds to erect such a building.

In pursuance of this plan, I asked President Dabney last September to engage architects to help him to determine on a suitable location and to make plans and designs for such a hall to meet these needs. With my approval, he engaged Professor Warren Powers Laird, head of the department of architecture of the University of Pennsylvania and recognized as the leading university architect of the country, and Mr. A. Lincoln Fechheimer, of Cincinnati, the architect of the Woman's Building, to cooperate in preparing such plans and designs. After a careful study of the grounds and the needs of the institution, in the course of which they visited a number of other colleges and examined several of the best halls for this purpose, these gentlemen have submitted to me a design and description of a Convocation Hall, to be located at the northwest corner of the campus at Clifton and University Avenues, which I approve and now forward to you.

If you approve of the erection of a Convocation Hall of this kind on this location, to be known and named as the Obed J. and Amanda Landrum Wilson Memorial Hall, I shall be glad to provide for erecting, equipping and furnishing it.

The site selected is the most convenient and commanding one on the campus, accessible to public and students, and overlooking the hills to the west. The hall will be provided with an antiphonal organ and will seat approximately 2,000 persons, including main floor, balcony and stage.

EDUCATIONAL NOTES AND NEWS

DR. THOMAS F. KANE, president of Olivet College, Olivet, Mich., has been elected president of the University of North Dakota to succeed Dr. Frank L. McVey, who resigned to become president of the University of Kentucky.

SUPERINTENDENT E. C. WARRINER, of Saginaw, Michigan, will succeed President Charles T. Grawn, of the State Normal School at Mt. Pleasant, who will retire in April.

ASSISTANT PROFESSOR AMBROSE L. SUHRIE, of the school of education of the University of Pennsylvania, has presented his resignation, to take effect at the close of the current semester. He will head the School of Education, Western Reserve University, with an enrollment of about 2,000 students, chiefly teachers in the public, elementary and secondary schools of Cleveland and suburbs. He will also conduct the Cleveland Summer School for Teachers, with an enrollment last year of 650 students, and he will act in the capacity of superintendent of the Cleveland Normal School with an enrollment of nearly 400 students in training for the Cleveland Public School Service.

G. A. MCGARVEY, instructor in the college of education of the University of Michigan, has been granted a leave of absence, having been appointed to a position on the state board

for vocational education, recently established under the Smith-Hughes act. Mr. McGarvey will direct the work of organizing teacher training for the trades and industries. To this end, it will be necessary to discover and recruit desirable persons from the trades, train them for the work of teaching, and assist in establishing proper courses for purpose of providing a permanent trained group of teachers of trade and industrial subjects. At present the state board for vocational education is outlining and promoting war emergency work for drafted men in their home towns.

MRS. S. BRYANT, D.Sc., D.Litt., who has been head-mistress of the North London Collegiate School since 1895, will resign at the end of the summer term.

PROFESSOR BERNARD PARES, professor of Russian history, language, and literature in the University of Liverpool, has been appointed the first incumbent of the chair of Russian which has been established by endowment from the London County Council, and will be tenable at King's College.

DR. H. L. RUSSELL, dean of the college of agriculture of the University of Wisconsin, has been granted leave of absence by the university, at request of Mr. Herbert Hoover, U. S. Food Administrator. Dr. Russell will organize the Section of Agricultural Relations which will connect the work of the Food Administration and the U. S. Department of Agriculture along production lines and present the work of the administration to the extension agencies of the agricultural colleges.

THE Food Administration has requested and secured from the New York Agricultural Experiment Station leave of absence for F. H. Hall, vice-director and editor of that institution, in order that he may take charge of the publicity work of the Food Administration dealing with perishable foods.

THE board of regents of the University of Nebraska have granted a leave of absence until September 2 to Chancellor Samuel Avery, that he may go to Washington to accept the position of chemist to the National Council of Defense.

TO PROFESSOR JOHN MATTHEWS MANLY, head of the department of the English language and literature in the University of Chicago, has been given leave of absence to become a captain in the Intelligence Division, War College, Washington, D. C.

WILLIAM R. CASTLE, JR., former assistant dean of Harvard University, has been appointed director of a Red Cross bureau organized to give relatives of soldiers killed, wounded or missing at the front fuller information than is carried in the official casualty lists of the War Department.

PROFESSOR GEORGE TAYLOR FILES, of the German department at Bowdoin College, will go to France in February as an executive worker in one of the Y. M. C. A. bases with the rank of lieutenant.

GROVER CHESTER BOWMAN, superintendent of schools at Westport, Conn., has been elected superintendent at Enfield, Conn.

A. J. STODDARD has been appointed to succeed E. J. Bodwell, as superintendent of schools in Beatrice, Nebr.

WM. H. SLAYTON, of Claremont, N. H., has been elected superintendent of schools at Portsmouth, succeeding James N. Pringle.

PROFESSOR ALBERT BUSHNELL HART, of Harvard University, spoke at Williams College on January 24 on "Business as usual" under the auspices of the Good Government Club.

FREDERICK C. HOWE, commissioner of immigration in New York, spoke at the Clark College assembly on January 10 on "After the war—what?"

EX-REGENT LEVI L. BARBOUR, of the University of Michigan, will give the sum of $50,000 as an addition to the fund already established by him for scholarships for Oriental girls.

THE report of the treasurer of Brown University for the year 1916–17 shows a surplus in the general fund for the maintenance of the university. The income from the general fund of $2,485,878.61 amounted to $125,446.41, and payments for tuition and from various

other sources brought the total income for the year to $326,676.11, the expenditure being $323,433.03.

THE semi-centennial of the University of California will be celebrated at Berkeley from March 18 to 23.

AT a meeting of the board of regents of the University of Michigan on December 21, a communication was received from Professor Whitney calling attention to a decrease in the teaching staff of the department of education in the face of an increase in the enrolment in that department, and requesting the appointment of a professor of educational psychology and experimental education.

THE College of the City of New York has announced the opening of its evening and summer classes to women as fully matriculated pupils, in the term beginning on February 13, for which registration opens on January 28. It is understood that there are 500 women who have been taking the courses without prospect of degrees, who will now be able to matriculate on the same terms as men.

THE daylight saving scheme to advance the university clocks one hour was defeated by the undergraduates at Harvard University by a vote of 689 to 393. A few more than half of the college students voted on the question.

SPECIAL efforts have been made to introduce in the next University of Michigan summer session courses that have a direct bearing upon the problems of the war. Students are being urged by President Hutchins and other university officials to shorten the usual four years of residence at Ann Arbor by entering the summer school. Among the courses specially designed for war service may be mentioned the following: The Army stores course, to prepare men for positions in the quartermasters' or ordnance department; military tactics and training, to provide men for officers' training camps; war pathology, to equip medical men to cope with mental disorders incident to the war; first aid; the diplomacy of the war and the foreign policy of the United States; contemporary world problems, to train men to meet new political and industrial conditions; the war from the historical point of view, to afford insight in the course of events that precipitated the world struggle, and foreign languages, to meet the demands of the war and prospective trade conditions. As the summer session is an integral part of the university, practically all the instructors being members of the regular faculty, students may apply the credits earned during the summer toward the acquirement of degrees. Instruction will be given in the college of science and the arts, the colleges of engineering and architecture, the law school, the colleges of medicine and the college of pharmacy, besides the courses in library methods and embalming and sanitary science. The session will begin July 1 and close August 23.

DISCUSSION AND CORRESPONDENCE

MATHEMATICS AND FORMAL DISCIPLINE—AGAIN

YOUR correspondent and I have not taken the trouble to talk about the same thing. My thesis was not that experiences are not generalized; everybody knows they are sometimes and in some degree. My thesis was that you can not make a philosophy of education out of that. You can not make a philosophy of education out of the doctrine of formal discipline in any of its interpretations in its present highly unsatisfactory condition. What Mr. Moore says seems to me to support that contention. He objects to reading what Socrates, Plato, Aristotle, Descartes or Pascal said about the teaching of mathematics as having any bearing upon present-day reasons for teaching that subject. It is usually regarded as proper to inquire into the history of a doctrine whenever its meaning or its sufficiency is in question. There is special reason for calling these particular men to testify as to the teaching of mathematics as formal discipline, for they are commonly regarded as the authors of that theory. To show that they were in fact opposed to it is to locate its origin in other and perhaps in less worthy quarters.

The manyness of the opinions cited in favor of mathematics as general discipline in Morwitz's "Memorabilia Mathematica" has little

to do with the matter, though the quality and effect of their authors' reasoning may be worth considering.

I do not think Mr. Moore read far enough in Comte's "Positive philosophy" to get Comte's point of view. I commend to him the chapter entitled "Final estimate of the positive philosophy," where he will find many statements about mathematics, among them these:

> According to my theory, mathematics necessarily prevailed during the long training of the human mind to positivism; and sociology alone can guide genuine speculation when its basis is once fully ascertained. . . . We have seen throughout this work that mathematical science is the source of positivity; but we have also seen that mathematical conceptions are by their nature incapable of forming a genuine, complete and universal philosophy. . . . The fruitlessness of the notion is no evidence that it was given up by scientific men, who have still hoped, with every accession of discovery, to find their mathematical principle universally applicable at last; and the practical effect of their persuasion was simply to prejudice them against any other systematic conception, and even against any portion of natural philosophy which was too complex to be brought under mathematical management. . . . The comparative method proper to biology, and the historical method proper to sociology are the two greatest of logical creations achieved in the face of extreme scientific difficulties; but the disgraceful ignorance of almost all geometers of these two transcendent methods of logical investigations shows that it was not mathematics that furnished the conception, though some examples of them may be found in mathematical science, fruitless and unintelligible to all who have not derived them from their original source. So much for the logical estimate.
>
> As for the scientific, the superiority of the sociological spirit is no less evident in regard to the universality required. Though the geometrical and mechanical point of view is universal, in as far as that the laws of extension and motion operate in an elementary way upon all phenomena whatever, yet, however valuable may be the special indications thence arising, they can never even in the simplest cases obviate the necessity of a direct study of the subject; and that direct study must always be the preponderant one.

As to the study of mathematics having an effect when it is taken sparingly in youth that it does not have if persisted in in age, that is an assumption that has long puzzled me. I confess to inability to understand how a study which makes specialists of adults can have the opposite effect of making generalists of boys and girls. It seems to me it must have the same kind of effect upon both and that what we mean is that we want everybody to pursue the special lessons of mathematics up to a certain point and beyond that point they will not be useful for all just because they are special lessons. But that is to abandon the mystical value of mathematics altogether which the fate which overtakes the adult specialist warns us to do.

Mr. Moore advises me to follow Professor Hancock's example and collect the opinions of "prominent lawyers, physicians, ministers, and men of affairs," as to what the young of our day should study and why. Professor Snedden has already pointed out the insufficiency of that method. It seems to me to employ the doctrine of general discipline with a vengeance. How the opinions of these men upon the study of mathematics can be any better than their opinions upon dietetics, I do not quite see. Socrates, Plato and Aristotle at least spent their lives in thinking about education. There is no statute of limitations against their work.

Fully ninety per cent. of the teachers whom I have met in schools and colleges and nearly one hundred per cent. of the parents whom I have been privileged to know still believe that young people attend school in order that the faculties of their minds may be improved and perfected. It was folks of that kind I was addressing. The "transferists" have done little to banish that superstition. It is time for them to publicly acknowledge that they are talking about something quite different. To say that the doctrine of formal discipline does not depend upon the faculty psychology is to use words contrary to general acceptation without defining them and thereby to perpetuate and foster an erroneous conception which should long since have been rooted from the popular mind. In spite of statements to

the contrary there are some things we could conceivably do with faculties if we had them that we can not do with functions. If we still believed in faculties we might insist—the thing is done sometimes—that training a soldier to shoot with a rifle trains him at the same time to shoot with a revolver, a trench mortar, a French 75, to dig trenches, throw hand grenades, use the bayonet, and cut barbed wire without making a noise. For is not his faculty of soldiering being trained? As long as we do not believe in faculties we are more modest in our expectations. We perhaps agree that no matter how well he shoots with a rifle he must nevertheless have specific lessons in the use of the bayonet, throwing hand grenades, in digging trenches and in cutting wire. On the other hand most of us perhaps would admit that there is something in common between shooting with a rifle and shooting with a cannon, a trench mortar or a revolver. These arts are in some sense one; but our government can not train our soldiers on that basis. It gives them lessons in the use of all the arms. Any one who cares to can conduct experiments to determine just what degree of knowledge is carried over from rifle-shooting to grenade-throwing or operating a big gun. The question is not without interest, but its answer will not materially change the specific training which the nation gives its soldiers.

Mr. Moore believes that the process of reasoning can be acquired apart from the data upon which it is to be used. Faculties or no faculties, that is the inveterate error of formal discipline, its separation of activities from the subject-matter of their action. I can not do better than to quote Professor Dewey upon this fundamental fallacy:

> To talk about training a power, mental or physical, in general, apart from the subject-matter involved in its exercise, is nonsense.

Mr. F. C. Lewis's results are, to be sure, not final. They are simple enumerations of facts as he found them. They can not, I think, be tortured into meaning anything but a challenge to the other side to prove its case. Mr. Moore declares that my error in regard to Dr. Rugg's experiments is in believing that we can obtain "very precise results by the use of data which are not themselves very precise." That is exactly what I protest against the other side doing. If the results are not precise how can they be more precise for the doctrine than against it? Dr. Rugg's summary of the results of the experimental studies thus far made seems to me to be admirable:

> The experimentation has not led to the acceptance of a belief in that widespread improvement that was expected by the old formal-disciplinists prior to the beginning of experimental work. The results so far place us still in a middle ground. "Transfer" is an accepted experimental fact, but as to the extent to which training transfers and the most favorable conditions for its transfer specialists are not always agreed. . . . Thus the studies indicate that the law of learning has to be made a conscious matter of ideation in order to insure any considerable amount of transferred improvement.

Our whole complaint against the doctrine of formal discipline is that it does not attempt to get results by conscious ideation. It expects them to grow where they have not been planted. If they grow in reliable quantity only from conscious ideation, the superstition that they come of themselves as happy by-products is banished and the fight for specific instruction is won.

The difference between Dr. Rugg's "not yet proven," Dr. Coover's "proven," Mr. Moore's "proven beyond a question," Professor Spearman and Dr. Sleight's "disproven," Professor Dearborn's "not proven," and the many other conflicting utterances of the experimentalists upon this doctrine have put a cloud upon its title which no amount of special pleading can remove. When we attempt to apply these highly discordant results in the selection of studies and ways of teaching we can make nothing out of them. They are a counsel of confusion. Dr. Coover's summary of experimental results does not agree with Dr. Rugg's and does not seem to be entirely warranted by the experiments which he recounts. But let us take it as though it were: "Under ex-

perimental conditions the 'general' effect usually ranged in amount from one fourth to three fourths of the gain made in specific practise." Now what educational application can one make out of that? Is there anything in it which rehabilitates the doctrine of formal discipline? Does that tell us to study mathematics for formal disciplinary reasons or not? Does it indicate that mathematics is superior to science, history or literature in contributing "general effect"? How general is the "general effect" which the experiments show? Does the experimenter who has had the special training become better in all respects or only in his ability to repeat and reapply the special lesson which he has learned? He can do kindred work or perform related activities better, he is not trained generally, but very particularly still. The fact that "transfer" is explained by those who attempt to explain it as due to common elements, middle terms, identity in method, content or aim indicates that what is transferred is the specific lesson or part of the specific lesson which has been learned. If that lesson is the carrier it must be kept in the focus of attention. The general grows out of the specific, but the specific must be learned before there can be a general. There are other reasons for emphasizing the preponderant importance of specific training. On Dr. Coover's own showing it always exceeds the "general effect" by from three fourths to one fourth. Now, since "general effect" is only slightly generalized specific effect, why not arrange to get the benefit of both together rather than reject the one to get the other? To make the general effect our object when we could have both is surely uneconomical.

The experiments do not show that one study is better than another in producing "general" effects. They offer as much comfort to one study as another. In this respect they do not establish the doctrine of disciplinary studies. They break it down.

Professor Spearman and Dr. Sleight can not be read out of court so cavalierly. As for the burden of proof it is still where it always has been—on the side making an assertion. The contention that particular studies have special and greatly to be preferred formal disciplinary effects has not been proven.

Since it is well to go to the experts for reasons for studying a subject, I should like to repeat two very important statements made since the beginning of the war by mathematicians. "In speaking of the significance of mathematics," says the retiring president of the Mathematical Association of America, Professor E. N. Hendrick, "I understand that we mean not at all the baser material advantage to the individual student, not at all a narrow utilitarianism but rather a comprehensive grasp of the usefulness of mathematics to society as a whole, to science, to engineering, to the nation. Any narrower view would be unworthy of us; any narrower demand by educators means a degraded view of the purposes of education in a democracy." And the other from the presidential address to the Mathematical Association of Great Britain, January, 1916, by Professor A. N. Whitehead: "But what is the point of teaching a child to solve a quadratic equation? There is a traditional answer to this question. It runs thus: The mind is an instrument, you first sharpen it and then use it. The acquisition of the power of solving a quadratic equation is part of the process of sharpening the mind. Now there is just enough truth in this answer to have made it live through the ages. But for all its half truth it embodies a radical error which bids fair to stifle the genius of the modern world. . . . Whoever was the originator, there can be no doubt of the authority which it has acquired by the continuous approval which it has received from eminent persons. But whatever its weight of authority, whatever the high approval which it can quote, I have no hesitation in denouncing it as one of the most fatal, erroneous, and dangerous conceptions ever introduced into education."

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QUOTATIONS

BRITISH MUSEUMS AND THE WAR

THE report that the government proposed to requisition the British Museum as the headquarters of the new Air Board has resulted in a storm of protest from many men of light and leading throughout the country, and from corporate bodies concerned with the promotion of the intellectual welfare of the nation. The correspondence published in the *Times* and other journals represents only a small fraction of the budgets received, and it is evident that the government will bring upon itself nothing but obloquy if it persists in the action contemplated. Since we referred last week to the projected dismantling of the galleries at Bloomsbury, it has been made known that the Office of Works has surveyed the Natural History Museum at South Kensington with the view of using the building for the purposes of other government departments, and has reported in favor of doing so. The very existence of our two greatest national institutions is thus threatened, unless a united effort is made at once to convince the cabinet of the unnecessary and ruinous proceeding to which certain administrative officials, with the usual indifference to scientific interests and inability to understand scientific values, desire to commit it.

The high-handed method adopted in the proposal to commandeer the two museums can not be justified even by the provisions of the Defense of the Realm Act. Sir Arthur Evans states that the trustees of the British Museum were not consulted upon the matter, though they are responsible for the collections, not as government nominees, but under an Act of Parliament. They were astounded upon receiving from the Air Board a requisition for the building to house the board's establishment, and at once sent a strong protest to the government against the scheme. Even an enemy invader could not adopt a more arrogant attitude towards the trustees than that shown by the representatives of the government. The collections were regarded as so much furniture which could be packed up in a few days by workmen and conveyed in pantechnicons to convenient places of storage until after the war. As "A Londoner" writes in the *Times* of January 4 in an attempt to justify the official attitude:

> It is pretty widely understood that the Air Board is willing and anxious to put its large resources in transport and labor at the service of the nation for the removal of the contents of the British Museum to places of safety which the board has already inspected and approved.

This semi-official pronouncement reveals entire incapacity to appreciate the difficulty of the problem of dealing with the contents of the museum. The whole of the objects are considered as goods which may be removed in a few days and returned without detriment at a later period of reconstruction. Because a selected number of objects have been carefully transferred to places of security by museum officials during the past two years, as a precaution against air-raids, it is assumed that the whole may be dealt with summarily by energetic workmen under the supervision of experts. The absurdity of this view will be manifest to anyone acquainted with museum work. To make a selection of fragile objects and other national treasures, and to take measures to preserve them from damage, are very different matters from that of clearing space without reference to what it occupies. It is certain that if the indiscriminate and hurried dismantling of the museum is proceeded with, many of the objects taken away will never be worth bringing back, and it would be just as well to make a bonfire of them at once.

Only a small proportion of the contents of the museum could be removed in time for the space they occcupy to be of any use to the Air Board. The library must remain, and the larger sculptures, including the more important pieces of the Elgin marbles, the Assyrian bas-reliefs, and the Egyptian statuary. The ethnographical collections can not be disturbed without certain destruction of many objects. The glass, pottery, porcelain, and faience collections, the ancient and medieval

gems, rings, and jewelry, the Greek vases, the Babylonian clay tablets, the Egyptian pottery and images, the terra-cottas, the bronzes—all these can be moved only with an infinitude of skilled handling and packing, and in a period of time which might well run into years rather than months. No, it must be clearly understood that if the museum is to be taken for the Air Board—which needs offices quickly—the board will have to be encamped in the middle of the collections, with all the increase of risk which such an encampment involves.

Our concern for the museum is not prompted by opposition to interference with the existence and work of the threatened institution, but by the desire to preserve national prestige and to prevent the ruin of possessions which can never be replaced. Only if reduced to the last extremity—and we are far from that condition—should a scheme be adopted which would give the enemy occasion to scoff at our willing sacrifice of the glorious heritage represented by the collections in the national museum.

In the early days of the war we had to fight for our national museum, and well was it that we won a partial victory. Since then the members of the staff unfit for military service have carried on, with what good results a few bald statistics will show. During the past year the Natural History Museum has been consulted by at least fourteen government departments, as well as by numerous individuals engaged in war-work. The number of visitors, which is 1916 was more than 402,000, was increased in 1917 by 20,000; among these are soldiers receiving class-instruction in sanitary, veterinary, and other subjects. The annual number of acquisitions has decreased, because all purchases are stopped, but donations continue to flow in with a volume that seems to grow rather than diminish. Among these accessions have been thousands of specimens of the highest scientific importance. The dismantling of the museum would make the receipt of donations impossible, and the stream would be diverted elsewhere. In some cases it would never return.

"We are blamed," says the government in effect, "for commandeering hotels; we must leave places for our young officers to dine; do you expect us to oust another political club? We preach economy; do let us practise it for once. We can get the museum *rent-free*." Rent-free, indeed! Is the cost of structural alterations, of packing, of removal, and of restoration not to be paid for? Does the scientific help for our food-producers, our industrialists, and our fighting or wounded men weigh as nothing in the balance? Are the gifts which you reject devoid even of pecuniary value?

> What should ye do, then? Should ye suppress all this flowery crop of knowledge and new light sprung up and yet springing daily in this city? Should ye set an oligarchy of twenty engrossers over it, to bring a famine upon our minds again, when we shall know nothing but what is measured to us by their bushel?

"Milton!" we cry with Wordsworth:

> Milton! thou shouldst be living at this hour:
> England hath need of thee.

—*Nature.*

BOOKS AND LITERATURE

An Introduction to Educational Sociology. By WALTER ROBINSON SMITH. Boston, New York [etc.], Houghton-Mifflin Company, 1917.

Sociology and education are both so new as sciences that any attempt to introduce one to the other and to establish points of contact is welcome. Workers in both fields are constantly amazed at the parallel developments that have gone on, almost unnoticed. In "An Introduction to Educational Sociology," Professor Walter Robinson Smith has done something that should help social workers and students of educational theory and administration to understand each other.

While giving due credit to the numerous books already in print on social education, Dr. Smith points out that these texts have invariably approached the problem from the standpoint of education rather than from that of society. They have been written by psychologists, rather than by sociologists, and

there is need for "a clear statement of the social and sociological, as distinguished from the individual and psychological, points of view." It is this need that Dr. Smith seeks to meet, with special reference to the requirements of college students, bearing in mind that such a book is to be read by "sociologists untrained in educational theory, educators untrained in sociology, and undergraduates with little training in either field."

Part I. of Professor Smith's book deals with the sociological foundations—sociology in its relation to education, the individual and the social group, social organization, the primary social group, the state and education, the growth of democracy and its relation to education, and the evolution of the modern school. This half of the book closes with an admirable summary chapter devoted to the three main topics of "Extension of Education from the Classes to the Masses." "Evolution of the Utilitarian Curriculum," and "The Development of State Educational Control."

The "educational applications" of theories of social development are described in detail in Part I. The chapter on social and educational surveys, though unfortunately written before the important recent surveys of the national government were at hand, will be exceedingly helpful to school men because of the clear account it gives of the York, Pittsburgh, and other social surveys that preceded the school-survey movement. Incidentally, Professor Smith will find an interesting confirmation of the point of essential relationship he makes, as well as of the value of contacts between the two sciences of sociology and education, in Thomas Jesse Jones's report on Negro Education, just issued—a survey of schools and school systems by a man who is both an educator and a sociologist.

The chapter on "Social Factors in School Administration" will make many a superintendent see his job from a broader viewpoint than that of so many teachers, so many pupils, and so many school buildings.

Other sections deal with the socialization of discipline, the socialization of the program of studies, and the social basis of utilitarian education. The discussions of vocational training and vocational guidance are especially pertinent in view of the recently adopted policy of federal aid for vocational education and the problems of vocational adjustment arising from the war.

W. C. R.

EDUCATIONAL RESEARCH AND STATISTICS

IMPROVING TEACHERS' ESTIMATES OF COMPOSITION SPECIMENS WITH THE AID OF THE TRABUE NASSAU COUNTY SCALE

THIS article aims to present the results of an attempt to discover for a group of teachers what improvement can be brought about in estimating the merit of composition specimens through the introduction of a scale. The study was conducted in one school in a large Wisconsin city in June, 1917. It is only one of many similar experiments which the writer in his capacity as a state supervisor of educational measurements is called upon to make. Its conclusions are not essentially different from those reached by other investigators in the same field. The writer's experience, however, in meeting with teachers, principals and superintendents has convinced him that the time has not yet arrived when efforts to establish the merits of standard tests and scales can be relaxed. The frequent requests for demonstrations of the merit of standard tests and scales and the large numbers of teachers observed who have heard little of such instruments, much less applied them, seems to indicate the need and to warrant us in reporting the results of the present study.

For the purpose of the experiment the twelve specimens following were selected from Thorndike's "English Composition, 150 Specimens Arranged for Use in Psychological and Educational Experiments." The specimens were so selected as to include specimens of various degrees of merit.

THE SPECIMENS

Set F–3

Some of the house burned and the children were in bed and there were four children and the lady next store broke the door in and went up stars and

woke the peple up and whent out of the house when they moved and and the girl was skard to look out of the window and all the time thouhth that she saw a flame.

And the wise monkey reward from going to the firehouse and jumping all round and was thankful from his reward and was thankful for what he got. $15. was his reward.

Set C–7

It was a cold evening. I had been sick for a week and was glad to be able to be down stairs and to look out of the windows and see the ground, even if it was covered with snow, instead of a lot of chimneys. As I sat looking into the fire I saw the red flames jumping about merrily, as it they were playing hide-and-seek with the little blue gases. I noticed how oddly the nickel was carved. As I looked closer I found it easy to see it in different shapes. Part of it took one shape and part another. As I sat there, making the stove into something very different from what it was, the time slipped by and it was very late. The lamps were being lighted and my imaginary people were gone.

Set B–8

One day a house burned up. There was only one little girl in the house. When all of a sudden a monkey came along with a organ man. When he saw that the house was on fire he went up and saved the little girl.

When her paent came home they were very thankful and gave the organ man a reward.

Set B–4

Last Monday the house on the corner of Jay street was burned down to the ground and right down by Mrs. brons house there is a little child all alone and there is a bad man sleeping in the seller, but we have a wise old monkey in the coal ben so the parents are thankful that they dont have to pay any reward.

Set I–7

How one loves to see the burly figure of him, this thick-skinned, seemingly opaque, perhaps sulky, almost stupid man of practice, pitted against some light adroit man of theory, all equipt with clear logic, and able anywhere to give you why for wherefore! The adroit man of theory, so light of movement, clear of utterance, with his bow full-bent and quiver full of arrow-arguments,—surely he will strike down the game, transfix everywhere the heart of the matter; triumph everywhere, as he proves that he shall and must do? To your astonishment, it turns out oftenest no. The cloudy-browed, thick-soled, opaque practicality, with no logic utterance, in silence mainly, with here and there a low grunt or growl, has in him what transcends all logic-utterance; a congruity with the unuttered. The speakable, which lies atop, as a superficial film, or outer skin, is his or is not his; but the doable, which reaches down to the world's center, you find him there!

Set C–6

Among the beautiful islands on the Canadian side of the St. Lawrence River, there is a deep and narrow channel which separates three small wooded islands from a large fertile one. Of the three islands the largest is rocky and covered with a growth of stately pines and waving hemlocks, and a carpet of moss and ferns. On the second there is quite an assortment of trees, whose foliage during the fall turns to many shades of gold and red, which colors are greatly enhanced by the dark green background of its neighbor. On the third there is a thick growth of brush, with an occasional small tree. These three islands are so close together, that fallen trees and logs make it possible to walk from one to another.

B–5

The sun was setting, giving a rosy glow to all the trees standing tall black against the faintly tinted sky. Blue, pink, green, yellow, like a conglomeration of paints dropped carelessly onto a pale blue background. The trees were in such great number that they looked like a mass of black crepe, each with its individual, graceful form in view. The lake lay smooth and unruffled, dimly reflecting the beautiful coloring of the sky. The wind started madly up and blew over the lake's glassy surface making mysterious murmurings, blending in with the chirping songs of the birds blew through the tree tops setting the leaves rustling and whispering to one another. A squirrel ran from his perch chattering, to the lofty branches—a far and distant hoot echoed in the silence, and soon night, over all came stealing, blotting out the scenery and wrapping all in restful, mysterious darkness.

C–3

If the amount of one thousand dollars should be given me, as a present, to be spent as I wished, I should invest it in books. I would invest in books of history, science, fiction of the good wholesome kind, and books of oration.

I should invest in books, because they are valuable; also, useful. In school we would have the

use of the books on oration and history. For the out-of-door life we would have science. For the hours of rest, the books of fiction.

B–10

"There are five little children that live near us who are very poor. They seldom have any new clothes and less often any toyes.

"On Christmas and other days when we children have toys these children may be seen looking at us with longing eyes, and Easter time they even seem envious.

"Well I would first buy each child a pair of shoes about three and one half dollars. Then I would buy the girls, three of them, new dresses. The boys new suits. Which would cost about thirty dollar. Of course the girls would have to have hats. I would get simple ones but pretty. Then the boys must have caps. . . ."

G–8

The boys call out at one time, we want to play football. One boy hollars captain on one side. The game is started, and I am afraid I will get hurth. All at once I see the boys running I run to I jump on one boy. I get a goo and tight grip, and I was down on the ground.

F–9

One day a house was burned up, and a little child was in it. His parents were taking a walk. When they came back they saw the fire-men turning on the water for the hose. The ask'ed some boys near by and said "Do you know whoes house is on fire" The boys said "Your house' your house' "Our house" said the nerves women "But where is the monkey and Freadie." We do not know." they said. Just then one of the firemen saw from a window a monkey carring a baby in his arms. "There is the baby" cried the happy lady. And She kissed the baby and the monky and were very thankful. to the monkey, and gave the monkey a fine collar for reward.

A–9

"I would by each person twenty dollars worth the goods, or I would give each person twenty dollars, If I would spend the one hundred dollars between the five persons, I would buy each one a suit of clothes, shoes, stockings, Caps, Over Alls and Jumper."

Each teacher was provided with a copy of the twelve specimens and asked to rate each on the scale of 100. Each was also provided with a blank form on which to record her estimate of each specimen. The objection was raised by some that without any indication as to the grade to which these specimens belonged, it would be difficult to place an estimate upon them. This is a common objection, since teachers customarily use one arbitrary standard in one grade and another in the next. When asked to express a mark assigned in one grade in terms of what would be a fair mark for the same paper if produced in some other grade, they are very much perplexed. They have little notion of what their estimate of 80 in grade six should be if the paper were produced by a pupil in grade eight. The instruction was given to think of the very poorest production they could conceive as meriting a mark of zero and the very finest literary production as meriting 100. When the specimens had been rated thus, the next step was a preliminary study and discussion of the Trabue Nassau County Supplement to the Hillegas Scale for Measuring Composition. The following day the teachers were asked to rate each specimen in terms of this scale.

They were instructed to compare each specimen with the scale samples. When a teacher found the particular scale sample to which a specimen to be rated most nearly corresponded in general merit, she was instructed to assign it the value attached to that scale sample; *e. g.*, if in her judgment a given specimen was more nearly equal to the sample whose value is five than any other, she rated the specimen five.

The request was made not to assign values intermediate between any two consecutive scale steps; *i. e.*, if a specimen was judged to be somewhat better than five but not as good as six, the instructions were to decide between five and six and not to assign an intermediate value as 5.5. It was felt that if any interpolation were permitted at this stage, it would introduce an unwarranted number of difficulties. Had this restriction not been made, there is good reason to believe that the improvement shown in estimating specimens of composition, when aided by the scale, would have been even greater. To convert the ratings assigned when

using the scale to a per cent. basis, the mark given each specimen was multiplied by ten.

When all had completed the rating of the twelve specimens, and recorded the estimates, the correct or standard value for each specimen was made known. The number of points which each teacher's mark on a given specimen was too high or too low was then recorded. The results, both for the unaided judgment and when aided by the use of the scale, are indicated in the tables following. It should be borne in mind that these are results obtained after not more than one hour of practise in the use of the scale, and they are not as satisfactory as might be expected with more practise. Teachers are indicated by numbers 1 to 15, while specimens are designated by the letter indicating the sets of composition from which each was selected. The figures in Tables I. and II. indicate the amount which the marks assigned by teachers differed from the correct or standard value. Quantities preceded by a minus sign indicate judgments that were too low.

Table I., Unaided Judgment, reads as follows: Teacher number one graded specimen F–3, thirty points too high, specimen C–7, sixteen points too high etc. The total number of points which each *teacher* graded too high or too low is indicated at the base of each table. The total number of points which each *specimen* was rated too high or too low is indicated in the columns at the right in each table.

TABLE I

Unaided Judgment (Without Scale)

Amount which Teachers' Ratings were Above or Below the Standard Value on Each Specimen

Specimen	Teacher															Total Variation on Each Sample		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Too High	Too Low	Total
F–3	30	0	15	10	20	—5	10	20	10	35	5	5	10	10	20	200	— 5	205
C–7	16	— 4	16	9	11	11	16	16	11	16	6	11	21	6	21	187	— 4	191
B–8	34	21	34	39	34	44	24	24	— 14	49	34	34	44	34	24	473	— 14	487
B–4	42	27	37	17	52	27	17	7	27	37	17	17	17	37	27	405	0	405
I–7	—13	—13	—3	—13	—3	—8	—3	—3	— 3	— 8	—18	—33	— 3	—18	— 3	0	—145	145
C–6	15	5	—5	10	5	12	15	10	15	13	0	13	—10	10	15	138	— 15	153
B–5	12	— 3	7	7	7	12	12	8	— 7	7	— 8	—11	— 3	— 3	7	79	— 35	114
C–3	26	31	26	21	21	21	11	14	21	21	21	35	36	26	—19	331	— 19	350
B–10	18	23	23	23	13	28	13	8	28	28	23	15	28	3	23	297	0	297
G–3	35	40	35	35	25	45	35	15	40	40	5	40	35	15	15	455	0	455
F–9	30	—10	35	25	10	25	30	20	30	40	35	35	30	30	5	380	— 10	390
A–9	— 2	8	8	38	18	38	—2	8	28	8	— 2	13	44	—12	13	224	— 18	242
Amount each teacher estimated too high	258	155	236	234	216	263	183	150	210	294	146	218	265	171	170	3,169		
Amount each teacher estimated too low	15	30	8	13	3	13	5	3	24	8	28	44	16	33	22		265	
Total variation	273	185	244	247	219	276	188	153	234	302	174	262	281	204	192			3,434

It is to be noted that by the unaided judgment, the specimens were much more often rated too high than too low. Apparently teachers tend to mark high when unaided by a scale. Two questions immediately arise: (1) If teachers rate high, is it possible that they accept mediocre productions as satisfactory work and that as a result children are not urged to the limit of their capacity? (2) Can teachers be led to give more nearly correct ratings by the use of a scale? A comparison of the two tables seems to answer this question in the affirmative.

Consider first Table I., Unaided Judgment If we add the amounts by which each teacher's estimate differed from the correct or stand-

ard values on specimens rated too high and combine this with similar figures for specimens rated too low, we have the total number of points which each teacher varied from the standard value. Thus, teacher number one rated 10 of the specimens too high for a total of 258 points. She rated 2 specimens too low by a total of 15 points. Adding 258 and 15 gives 273 points, the total amount which this teacher's estimates varied from the correct value for the 12 specimens. Adding the results for all teachers, we get 3,169 for the sum of the ratings that were too high and 265 for those too low. Adding these two figures gives 3,434 as the total variation, an average of 19.1 for each teacher on each specimen.

Turning now to Table II., Aided Judgment, we get a total of 1,499 for the sum of the high ratings, and 592 for ratings that were too low. The total variation is only 2,091, an average of 11.6 per teacher for each specimen, as compared with 3,434 and an average of 19.1 for the Unaided Judgment.

Thus a decided reduction in variability from 3,434 to 2,091, or 39.1 per cent., has been brought about in the first attempt to use a scale. The marks assigned have, on the whole, been decreased by the aid of the scale, as shown by the decrease from 3,169 to 1,499 in the figures representing the total variation on specimens rated too high.

These facts may be brought out in another way. Since there were 15 teachers and 12 samples, 180 individual ratings were necessary in each case. In the first case, Table I., Unaided Judgment, 147 or nearly 82 per cent. of these were too high, while in the second case, Table II., Aided Judgment, this number was reduced to 95. If we eliminate from our consideration specimen I–7, which not only in this experiment but in others has proved to be unusually difficult to rate, there remain 165 individual ratings. When that is done, 417 ratings out of 165, or 89 per cent., were too high, by the unaided judgment, and only 95 out of 165, or 58 per cent., when using the Trabue Scale. It will be seen, therefore, that the effect of employing the scale even in this first attempt at using it has been (1) to materially reduce the percentage of estimates

TABLE II

Aided Judgment (With Trabue Scale)

Amount which Teachers' Ratings were Above or Below the Standard Value on Each Specimen

Specimen	Teacher															Total Variation on Each Sample		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Too High	Too Low	Total
F–3	18	—20	8	—1	8	— 1	— 1	—20	— 1	8	18	— 1	1	— 8	18	79	— 53	132
C–7	6	—14	6	6	—2	—14	— 2	16	6	— 2	— 2	— 2	16	— 2	6	62	— 40	102
B–8	14	2	36	36	2	2	24	24	24	24	— 8	26	24	24	36	298	— 8	306
B–4	6	15	67	15	15	15	15	7	— 6	15	15	15	— 6	25	15	240	— 12	252
I–7	—21	—13	—13	—7	—3	—33	—13	—11	—13	—13	—15	—21	—21	— 3	—13	0	—213	213
C–6	0	— 8	0	0	0	0	10	0	10	10	10	0	0	10	10	60	— 8	68
B–5	7	—11	7	7	7	— 3	—11	7	7	7	—11	—23	—11	— 3	— 3	49	— 76	125
C–3	1	1	13	13	13	1	—21	14	— 1	13	— 9	21	31	31	— 31	152	— 62	214
B–10	3	— 9	3	3	13	3	3	7	3	13	9	— 9	13	— 3	— 9	73	— 30	103
G–3	3	3	13	7	13	3	3	13	—13	13	13	35	3	13	13	148	— 13	161
F–9	10	10	— 2	12	20	—12	10	20	2	—12	—12	20	10	32	— 2	146	— 40	186
A–9	28	6	18	18	18	6	—13	28	—13	— 4	28	— 4	24	— 3	18	192	— 37	229
Amount each teacher estimated too high	96	37	171	117	109	30	65	136	52	103	93	117	122	135	116	1,499		
Amount each teacher estimated too low	21	75	15	8	5	63	61	31	47	31	57	60	38	22	58		592	
Total variation	117	112	186	125	114	93	126	167	99	134	150	177	160	157	174			2,091

that were too high, and (2) to reduce the total variation on the group of specimens.

A discussion of this experiment, however, is incomplete without a more detailed consideration of the success of individual teachers in their efforts to make use of the scale and of the success of the teachers in rating particular specimens. One may well ask whether every teacher improved her judgment of the compositions when aided by a scale? Did all teachers whose first estimates were too high tend to reduce them with such help? Were teachers able to improve their judgments on every specimen?

Referring again to Tables I. and II., we see that every teacher, save number 8, improved her judgment. It should be observed, however, that teacher number 8 was the best judge of the 15 in estimating compositions without a scale. Her average variation from the correct value in the first case, Unaided Judgment, was 12.7 per specimen and in the second, 13.9. The average variation per specimen for each teacher may be seen from the Table III.

Only two teachers varied less than an average of 15 points per sample by the unaided judgment. None varied as much as 15 points when aided by the scale. Four teachers decreased their variation by more than half.

On how many of the 12 specimens did each teacher improve? Table IV. is derived from Tables I. and II., and indicates the number of specimens on which each teacher improved her estimate, the number on which it was not as good, and the number on which it was just the same when using the Trabue Scale as an aid.

Every teacher except number 8 improved on one half or more of the samples. Teacher 8 improved on 4, remained the same on 6, and did not judge as accurately on two. Of the specimens on which her estimate was not as good, one is a very poor composition specimen, A–9, of which the standardized value is 32, and the other is specimen I–7 previously noted as a sample which is unusually difficult to judge. For the group of 15 teachers, a gain was made on 125 out of the total of 180 individual ratings required. This means a gain on 69.4 per cent. of the ratings. There was a loss of 35 or 19.4 per cent. of them. If we eliminate specimen I–7 which, as we have noted, offers unusual difficulty in rating in making up Table IV., we have Table V. In Table V. there was a gain on 121 of the 165 ratings or in 73.3 per cent. of the cases. It was not as good in 26 or 15.8 per cent.

TABLE III

Average Variation of Each Teacher from the Standard Value per Specimen

	Teacher															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Unaided judgment (without scale).....	22.7	15.4	20.3	20.6	18.2	23	15.7	12.7	19.5	22.5	14.5	21.8	23.4	17	16	19.1
Aided judgment (with Trabue scale)..	9.7	9.3	15.5	10.4	9.5	7.7	10.5	13.9	8.3	11.2	12.5	14.7	13.3	13.1	14.5	11.6

TABLE IV

Showing the Number of Specimens on which Each Teacher's Estimate was Improved by the Aid of the Trabue Scale, the Number on which it was Not as Good, and the Number on which it Remained the Same

Teacher	Estimate Improved	Estimate Not as Good	Estimate Remained the Same	Total
1	10	2	–	
2	6	4	2	
3	7	4	1	
4	11	–	1	
5	7	1	4	
6	10	2	–	
7	8	3	1	
8	4	2	6	
9	9	2	1	
10	10	1	1	
11	7	5	–	
12	11	1	–	
13	10	2	–	
14	7	2	3	
15	8	4	–	
Total.....	125	35	20	180

Showing the Same Facts as Table IV., Omitting Specimen I–7 from Consideration

How many teachers improved on each of

the 12 specimens? Table VI. indicates by specimen the number of teachers whose estimate improved, the number not as good and the number remaining unchanged. The total number of individual ratings that were improved when considering all specimens and when omitting specimen I–7 may be seen at the foot of the table.

TABLE V

Teacher	Estimate Improved	Estimate Not as Good	Estimate Remained the Same
1	10	1	–
2	6	4	1
3	7	3	1
4	10	–	1
5	7	1	3
6	10	1	–
7	8	2	1
8	4	1	6
9	9	1	1
10	10	–	1
11	6	5	–
12	10	1	–
13	10	1	–
14	6	2	3
15	8	3	–
Total.....	121	26	18

For every specimen except I–7 the number of teachers who improved is greater than the number who did not. For specimens B–5 and A–9 the gain is small but for each of the nine remaining samples it is very marked. The percentage of the 180 individual estimates that improved was indicated previously.

The average variation of all teachers on each specimen, both for the unaided and the aided judgments, and the standardized value for each specimen are shown in Table VII. There is a gain by the aided judgment, *i. e.*, using the scale, on 10 of the 12 specimens. On two there is a loss. These two are specimens I–7 and B–5, both of which, it will be noted, have unusual literary merit. The particular difficulty in rating sample I–7 comes from the fact that it possesses an unusual depth of meaning. Its ideas are philosophical and the average teacher skims over it for its mechanical features, failing entirely to grasp its meaning, much as a high-school freshman might fail to fathom Browning. It is not uncommon for a teacher to say of I–7: "There is no sense to that sample." She then proceeds to assign it a low mark.

TABLE VI

Showing Number of Teachers who Improved their Estimate on Each Specimen, the Number whose Estimate was Not as Good, and the Number whose Estimate Remained the Same

	Estimate Improved	Estimate Not as Good	Estimate Remained the Same	Total
F–3.....	12	2	1	
C–7.....	12	2	1	
B–8.....	10	3	2	
B–4.....	13	1	1	
I–7.....	4	9	2	
C–6.....	12	2	1	
B–5.....	5	4	6	
C–3.....	11	3	1	
B–10.....	13		2	
G–3.....	14	1		
F–9.....	11	2	2	
A–9.....	8	6	1	
Total.....	125	35	20	180
Total omitting specimens I–7	121	26	18	165

The peculiar behavior of the individual estimates on this specimen, together with the unduly high estimates placed upon very poor specimens, seems to be evidence that, no matter how much teachers may deny the fact, they do as a matter of practise mark on their general impressions. Hence, when asked to

TABLE VII

SPECIMEN

Showing Average Variation of all Teachers on Each Specimen for Unaided and Aided Judgments and the Standard Value for each Specimen

	F–3	C–7	B–8	B–4	I–7	C–6	B–5	C–3	B–10	G–3	F–9	A–9
Unaided judgment (without scale)	13.5	12.7	32.5	27	9.7	10.2	7.6	23.3	19.8	30.3	26	16.1
Aided judgment (with Trabue scale).....	8.8	6.8	20.4	16.8	14.2	4.5	8.3	14.3	6.9	10.7	12.4	15.3
Standard value of specimen.....	20	74	36	13	93	80	83	59	47	25	40	32

rate specimens with a scale and instructed to grade on general merit, they are not asked to adopt a basis that is essentially new or different. Inaccurate grading by the use of the scale results from wrong impressions formed, both of the scale samples and of the specimen to be graded. With a more thorough study of the scale and sufficient practise in its use, it is quite probable that a greater number of these grossly incorrect impressions could be improved. The complaint has arisen that teachers can not grade accurately with a scale. This inaccuracy in grading is due largely to the fact that they do not grade a specimen on its *real* merit, but on some *false first impression of its real merit.* Familiarity with the scale samples and fair impressions of the specimens to be graded are two factors which undoubtedly make for accuracy in grading and which would improve with practise.

Specimens which were most inaccurately rated by the unaided judgment were specimens B–8, G–3, B–4 and F–9. These are all children's compositions of a rather low grade, the kind that a teacher is most often asked to judge. It is significant that a material improvement was made in rating each of these in this first attempt to apply the scale.

We can say then in answer to the question "Can teachers improve their judgment of the merit of composition through the use of a scale?" that there was a very decided improvement even with a very small amount of practise in its use. Abnormally high estimates were reduced and the amount which teachers varied from the true value was likewise reduced. This latter fact is shown by a decrease in variation of 39.1 per cent. and amounting to a reduction per sample from 19.1 to 11.6 for each teacher. The reduction brought about in estimates that were too high is indicated by the fact that with the unaided judgment 147 of the 180 individual ratings required were too high while with the aid of the scale, this number was reduced to 95. How many teachers were able to improve their estimates on the group of specimens may be judged from the fact that fourteen of the fifteen did so. It was not to be expected that teachers with such a limited amount of practise in the use of a scale would improve their estimates on every specimen. Their estimates were improved on 10 of the 12 samples. On the whole, the gains in accuracy of judgment which were brought about by the use of the Trabue scale after not more than the equivalent of one hour of practise in its use is significant enough to warrant its use as an aid in measuring the quality of children's compositions. The author of the scale is of the opinion that one does not become proficient in its use with less than 10 hours of practise.[1] There is good reason to believe that with an additional nine hours spent in practise with the scale a much greater improvement could be brought about.

If one may judge from similar experimental studies in estimating handwriting—*e. g.*, Gray's "The Training of Judgment in the Use of the Ayres Scale for Handwriting," *Journal of Educational Psychology,* February, 1915, there is good reason to expect that additional improvement would result from continued practise in the use of the scale. Gray found that in handwriting, improvement was still evident after a period of twenty weeks of practise. Handwriting is a relatively narrow and limited function when compared with such a broad and complex function as composition. It is reasonable to expect that by systematic practise of an hour per week, improvement in rating composition would be continued for a similar period, if not longer. Such factors as prejudice would doubtless become less evident with training. Specimens possessing an unusual depth of meaning would be less likely to be underestimated, and very poor specimens would be less often overestimated. The writer hopes to present at a later date the results of an attempt to measure improvement through continued practise in the use of a scale.

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[1] Trabue, Teachers' College Record, January, 1917.